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EXAMINER

QUASH, ANTHONY G

ART UNIT PAPER NUMBER

2881

DATE MAILED: 12/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/499,962

Applicant(s)

ANDERSON ET AL.

Examiner

Anthony Quash

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "said first mounting block surface" in line 5. There is insufficient antecedent basis for this limitation in the claim.

The term "generally" in claim 14 is a relative term, which renders the claim indefinite. The term "generally" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The term "first guide " and "second guide" in claim 11 is a relative term, which renders the claim indefinite. The term "first guide" and "second guide" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Meek [365]. As per claim 1, Meek [365] discloses a base (12) having front and rear faces and at least one side face and, at least two supports (13,14) wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. See Meek [365] fig. 1. However, Meek [365] does not specifically state that at least one of the supports has attached thereto a component of an ion optics system for a mass spectrometer, wherein at least one of the supports has attached thereto a component of an ion optics system for a mass spectrometer. See Meek [365] fig. 1 and col. 5 lines 34-50.

As per claim 2, Meek [365] discloses the alignment being at 90 degrees. See Meek [365] fig. 1.

As per claim 3, Meek [365] discloses at least one of the supports has at least two faces and at least a portion of each of the two faces being aligned with two faces of the base. See Meek [365] fig. 1.

Claims 1-5, are rejected under 35 U.S.C. 102(b) as being anticipated by Becker [137]. As per claim 1, Becker [137] discloses a base having a front face, a rear face and at least one side face, and at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support wherein at least one of the supports has attached thereto a component of an ion optics (20) system for a mass spectrometer. See Becker [137] abstract, figs. 1A, 1B, 3A, col. 4 lines 28-65 and col. 5 lines 55-60.

As per claim 2, Becker [137] discloses the alignment being at 90 degrees. See Becker [137] abstract, figs. 1A, 1B, and 3A.

As per claim 3, Becker [137] discloses at least one of the supports has at least two faces and at least a portion of each of the two faces is aligned with two faces of the base. See Becker [137] abstract, figs. 1A, 1B, and 3A.

As per claim 4, Becker [137] discloses a plurality of supports with attached components comprising an ion source (18) and a detector (19) and optionally one or more of a pulser, an ion mirror and an Einzel lens (40) and the alignment results in a relationship between the components that are within acceptable tolerances. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 5, Becker [137] discloses a mass spectroscopy apparatus according to claim 1. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

Claims 10, 13-18, are rejected under 35 U.S.C. 102(b) as being anticipated by Becker [137]. As per claim 10, Becker [137] discloses a mass spectroscopy apparatus comprising components of an ion optics system (20) for a mass spectrometer affixed to a mounting base, each of the components being affixed to a support, each of the supports having at least one support mating face, wherein the mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face wherein the support mating faces and the base mating faces are configured and dimensioned such that when the support mating faces are brought together in registration with the respective base mating faces, the components are optically aligned within acceptable tolerances. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 13, Becker [137] discloses a mating face comprises a planar surface adjacent an outside edge and a corresponding mating face adjacent an inside edge and the corresponding mating faces are brought together in registration by apposing the respective planar surfaces and edges. See Becker [137] figs. 1A, 1B, and 2A.

As per claim 14, Becker [137] discloses a mass spectroscopy apparatus wherein the mounting base is a generally flat member having first and second surfaces and a finite thickness, and wherein the support mating faces comprises a planar surface

adjacent an inside edge, and the corresponding base mating face comprises a planar surface that forms an outside edge where it intersects the first mounting block surface, and the mating faces are brought together in registration by apposing the respective planar surfaces and edges. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 15, Becker [137] discloses the outside edge formed by intersection of the base mating surface and the support mating surface defines a straight line. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 16, Becker [137] discloses the base mating surface being orthogonal to the support mating surface. See Becker [137] figs. 1A, 1B, 3A, and col. 4 lines 29-67, col. 5 lines 55-67, and col. 10 lines 20-35.

As per claim 17, Becker [137] discloses a mass spectroscopy apparatus comprising a time-of-flight mass spectrometer, the time components comprising at least one of an ion source, a pulser (18), and ion mirror or a detector (19). See Becker [137] figs. 1A, 1B, 3A, 4, col. 4 lines 29-67, col. 5 lines 55-67, col. 7 lines 60-67, col. 8 lines 58-67 and col. 10 lines 20-35.

As per claim 18, Becker [137] discloses the components further comprise an Einzel lens (40). See Becker [137] fig. 3A and col. 5 lines 55-60.

Claims 20-22, are rejected under 35 U.S.C. 102(b) as being anticipated by Becker [137]. As per claim 20, Becker [137] discloses a method of constructing an apparatus comprising a plurality of components of an ion optical system for a mass

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spectrometer, the method comprising bringing together a base having a front face, a rear face and at least one side face, and a plurality of supports wherein each of the supports has at least one face and wherein each of the components is attached or is attachable to one of the supports, aligning at least a portion of a face of each of the supports with a corresponding portion of at least one face of the base and securing the portions to one another, wherein the components of the ion optical system for a mass spectrometer are attached to the supports prior to or subsequent to the step and wherein the portions of the faces are configured and dimensioned such that when the portions are secured, the components are optically aligned within acceptable tolerances. See Becker [137] figs. 1A, 1B, 3A, and 4.

As per claim 21, Becker [137] discloses the components comprising an ion source and a detector (19) and optionally one or more of pulser, an ion mirror and an Einzel lens (40). See Becker [137] fig. 3A, col. 4 lines 35-45, col. 7 lines 60-67, and col. 8 lines 60-67.

As per claim 22, Becker [137] discloses the components comprising an ion source, and a detector (19) and optionally one or more of a pulser and an ion mirror wherein the components are aligned in a parallel relationship. See Becker [137] figs. 1A, 1B, 3A, 4, col. 4 lines 29-67, col. 5 lines 55-67, col. 7 lines 60-67, col. 8 lines 58-67 and col. 10 lines 20-35.

Claims 26-28, are rejected under 35 U.S.C. 102(b) as being anticipated by Becker [137]. As per claim 26, Becker [137] discloses all aspects of the claim explicitly stating affixing to a mounting base each component of an ion optics system for a mass



spectrometer. Becker [137] does however disclose affixing each component of the ion optic system to support, which is attached to other supports, which are in turn attached to the base. See Becker [137] figs. 1A, 1C, 3A, 3B and col. 4 lines 28-65. Therefore the components of the ion optics system are inherently attached to the mounting base. Becker [137] also discloses each of the ion optics components being affixed to a support either prior to or after the support is affixed to the mounting base, and each of the supports having at least one support mating face, wherein the mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face, wherein the support mating faces and the base mating faces are configured and dimensioned such that when the support mating faces are brought together in registration with the respective base mating faces, the components are optically aligned within acceptable tolerances, and securing the mounting base to frame of the mass spectroscopy apparatus. See Becker [137] figs. 1A, 1B, 3A, 4, col. 4 lines 29-67, col. 5 lines 55-67, col. 7 lines 60-67, col. 8 lines 58-67 and col. 10 lines 20-35.

As per claim 27, Becker [137] discloses the components comprising an ion source and a detector (19) and optionally one or more of pulser, an ion mirror and an Einzel lens (40). See Becker [137] fig. 3A, col. 4 lines 35-45, col. 7 lines 60-67, and col. 8 lines 60-67.

As per claim 28, Becker [137] discloses the components comprising an ion source, and a detector (19) and optionally one or more of a pulser and an ion mirror wherein the components are aligned in a parallel relationship. See Becker [137] figs.

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1A, 1B, 3A, 4, col. 4 lines 29-67, col. 5 lines 55-67, col. 7 lines 60-67, col. 8 lines 58-67 and col. 10 lines 20-35.

Claims 10-12,20,26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kirchner [975]. As per claims 10,20,26, Kirchner [975] discloses a mass spectroscopy apparatus and method comprising components of an ion optics system for a mass spectrometer affixed to a mounting base (485), each of the components being affixed to a support (485), each of the supports having at least one support mating face, wherein the mounting base comprises a plurality of base mating faces respectively corresponding to a respective support mating face, wherein the support mating faces and the base mating face are configured and dimensioned such that when the support mating faces are brought together in registration with the respective base mating faces the components are optically aligned within acceptable tolerances. See Kirchner [975] fig. 4A, abstract, col. 11 lines 25-67, col. 12 lines 25-35, col. 18 lines 50-60.

As per claim 11 to the extent understood, Kirchner [975] discloses a support mating face comprising a first guide and a corresponding base mating face comprises a second guide complimentary to the first guide and the corresponding mating faces are brought together in registration by apposing the first guide and the second guide. See Kirchner [975] fig. 4A.

As per claim 12 to the extent understood, Kirchner [975] discloses the guides being complimentary geometrical shapes. See Kirchner [975] fig. 4A.

Claim 30 is rejected under 35 U.S.C. 102(e) as being anticipated by Blessing [429]. Blessing [429] discloses a scientific apparatus for use in high vacuum

environments, the apparatus comprising at least one electrical connection therein resulting from a base having a groove in at least one face thereof wherein an electrical lead is sequestered in the groove and wherein a shielding plate covers the groove.

See Blessing [429] abstract, figs. 2, 2b-4, col. 5 lines 40-50, 63-67, col. 6 lines 1-10, col. 7 lines 1-15, and lines 35-50.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,6,8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young [976] in view of Kirchner [506]. As per claim 1, Young [976] teaches an apparatus comprising a base having a front face, a rear face and at least one side face and supports having attached thereto a component of an ion optics system for a mass spectrometer. See Young [976] fig. 2. However, it does not specifically state that the apparatus be comprised of at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support. However, Kirchner [506] does teach an apparatus be comprised of at least two supports wherein each of the supports has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a

portion of at least one face of the support. See Kirchner [506] fig. 2. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made cover the apparatus of Young [962] by at least two supports wherein each support has at least one face and wherein each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a port of at least one face of the support in order to provide a covering in order to produce a vacuum area for the ions to pass through.

As per claim 6, Young [962] teaches the supports are fixed to the front face of the base and the front face or rear face of the base having at least one groove therein. See Young [962] fig. 2.

As per claim 8, Young [962] teaches the base further comprising at least one opening there through. See Young fig. 2.

As per claim 9, Young [976] in view of Kirchner [506] teach all aspects of the claim except for at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening in order to ensure proper alignment with the ion optics and ensure a vacuum tight atmosphere.

Claims 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young [976] in view of Kirchner [506] as applied to claim 6 above, and further in view of

Blessing [429]. As per claim 7, Young [976] in view of Kirchner [506] teach all aspects of the claim except for an electrical lead being sequestered in the groove and the apparatus further comprising a shielding plate covering the groove. Blessing [429] does teach an electrical lead being sequestered in the groove and the apparatus further comprising a shielding covering the groove. See Blessing [429] abstract, col. 5 lines 40-53, 63-67, col. 6 lines 1-7, and col. 7 lines 1-15 and 35-50. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have electrical lead be sequestered in the groove and the apparatus further comprise a shielding covering the groove in order prevent non-ideal field distortion at the central axis as taught in Blessing [429].

Claims 19,23-25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirchner [975] in view of Young [976] and further in view of Blessing [429]. As per claims 19,25,29, Kirchner [975] teaches the supports being affixed to a front face of the mounting base. See Kirchner [975] fig. 4A. However, Kirchner [975] does not specifically state that front face or a rear face has at least one groove therein, wherein an electrical lead is sequestered in the groove and the mounting base further comprises a shielding plate covering the groove. Young [976] does teach the front face or a rear face having at least one groove therein and shielding covering the groove. See Young [976] fig. 2, col. 7 lines 9-35, 47-69 and col. 8 lines 8-15. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the front face or a rear face have at least one groove therein in order to aid in securing the ion optics to the base as taught in Young [976]. Although Young

[976] does teach the shielding, it does not specifically teach an electrical lead being sequestered in the groove. Blessing [429] does teach an electrical lead being sequestered in the groove. It also teaches the shielding covering the groove. See Blessing [429] abstract, figs. 2a-4, col. 5 lines 40-50, 63-67, col. 6 lines 1-10, col. 7 lines 1-10 and 35-50. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have an electrical lead be sequestered in the groove with shielding covering the groove in order to provide voltage and current to the ion optics without introducing non-ideal field distortions at the central axis as taught in Blessing [429].

As per claim 23, Young [976] teaches the base further comprising at least one opening there through. See Young [976] fig. 2.

As per claim 24, Kirchner [975] in view of Young [976] and further in view of Blessing [429] teach all aspects of the claim except for explicitly stating at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the supports being affixed to the base by the alignment of a portion of at least one face of the support and a portion of a face of the opening in order to ensure that the supports were aligned properly so as to provide a vacuum seal and also to ensure that the ion optics guided the ions to the detector.

**Conclusion**


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,329,654 to Gulcicek et al is considered pertinent to the applicants' disclosure because of its discussion on multipole rod construction for ion guides and mass spectrometers. See figs. 2-3.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (703)-308-6555. The examiner can normally be reached on M-F from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee, can be reached on (703)-308-4116. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

A. Q

A. Quash 12/2/02

  
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